

WHAT IS CLAIMED IS:

1. A method of scanning a sample with a scanning electron microscope having an object lens for focusing an electron beam, and an acceleration cylinder for accelerating said electron beam when said electron beam passes through said object lens, said method comprising:

forming an electric field on a sample between said acceleration cylinder and said sample so as to promote said sample to be charged,

irradiating said electron beam on a surface of said sample which is promoted to be charged under conditions such that secondary electron generation efficiency of secondary electron generated from said sample by irradiating said electron beam on said sample becomes close to zero in comparison with conditions used when promoting said sample to be charged.

2. A method of scanning a sample with a scanning electron microscope as defined in claim 1, wherein

a positive or negative voltage is added to said acceleration cylinder so as to promote said sample to be charged.

3. A scanning electron microscope comprising:

an electron source for generating an electron beam,

an acceleration voltage supply for accelerating said electron beam generated from said electron source,

a scanning deflector for scanning said electron beam on a sample,

an object lens for focusing said electron beam, and

an acceleration cylinder for accelerating said electron beam when said electron beam passes through said object lens, said scanning electron microscope further comprising:

a controller for controlling said electron beam by

(a) adding a voltage on said acceleration cylinder to form an electric field,

which promotes charging of said sample, between said acceleration cylinder and said

sample, and

(b) irradiating said electron beam on a surface of said sample which is promoted to be charged under the conditions that secondary electron generation efficiency of secondary electrons generated from said sample by irradiating said electron beam on said sample becomes close to zero in comparison with conditions used when promoting said sample to be charged.